

UNA CORDA

MANUAL



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Table of Contents

1	Welcome to UNA CORDA	5
1.1	The Real Instrument	5
1.2	Fabric Preparation	6
1.3	A Special Sound	6
1.4	Three KONTAKT Instruments	7
2	User Interface	9
2.1	WORKBENCH Edit Page	11
2.1.1	TONES Area	12
2.1.2	NOISES Area	13
2.2	RESPONSE Edit Page	16
2.2.1	MAIN TONE Area	17
2.2.2	GLOBAL Area	19
2.3	FINISH Edit Page	20
2.3.1	EQUALIZER	21
2.3.2	TRANSIENTS	22
2.3.3	COMPRESSION / TAPE	22
2.3.4	STEREO IMAGE	23
2.3.5	STYLE	24
2.3.6	SPACE	25
3	Credits	28

1 Welcome to UNA CORDA

Thank you for purchasing UNA CORDA, a virtual instrument that replicates a truly unique upright piano of the same name. The physical Una Corda piano was developed and built by piano builder David Klavins. Composer and pianist Nils Frahm greatly contributed to the design of the instrument by providing input on the piano's minimalist construction, and by suggesting how the strings could be prepared with fabric in order to create the distinct and outstanding sound he desired.

In 2014, David Klavins built the first Una Corda piano as a prototype with a key range of 64 keys; this instrument was delivered to Nils Frahm, who is now using it for performing live. Native Instruments commissioned David Klavins to build a second instrument with an extended key range of 88 keys specifically for the UNA CORDA sampling session in early 2015.

UNA CORDA captures all the key features of the original instrument:

- The **instrument** itself: A unique upright piano with just one string per key creating a pure and resonant sound character.
- **Fabric preparation:** Different fabrics were placed between hammers and strings in order to produce a damped, but still rich and percussive tone. Utilizing these preparations, the Una Corda piano creates a variety of tones a standard piano is not capable of creating.
- The **sound philosophy:** The unique sound created by the preparations is used in conjunction with noises, hiss, extreme compression, vintage outboard gear and other elements in order to create a distinct, ambient sound all within UNA CORDA, with no additional processing required.

1.1 The Real Instrument

As the name suggests, the Una Corda (Italian for 'one string') features only one string per key, which helps create the instrument's pure and distinctive tone by eliminating the minimal dissonances typically found in 3-string pianos. The single-string design also allows for a much lighter construction that further enhances the Una Corda's sound: the thin, rib-less soundboard produces a highly resonant tone that can unfold freely due to the open cabinet design.

1.2 Fabric Preparation

A number of preparation techniques were applied not just for dampening, but also for creating unique and original sounds. These techniques were refined by:

- Using **different fabrics** which not only dampen the strings to some extent, but also add overtones due to their harder surface .
- Getting the **hammers closer to the strings** for a softer dynamic range.
- Positioning **microphones very close to the strings** to catch a very intimate tone.
- Using the **percussive noises**, created by the hammers hitting the fabric, as a rhythmic element .

Two different fabrics were used for the sampling of the Una Corda piano:

- **Cotton with a hard surface:** Dampens the string just a little, but creates a harder attack, adds overtones and also creates an attack noise that can be almost as loud as the tone itself.
- **Felt with a soft surface:** Creates a very smooth tone with a softer attack noise that resembles an electric piano played “unplugged.”

1.3 A Special Sound

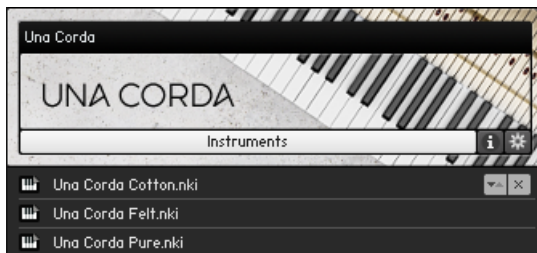
A couple of sound design elements support the unique, atmospheric tone of the UNA CORDA instrument:

- The prepared Una Corda was played softly during the recording. Consequently, the UNA CORDA instrument features quite a bit of **hiss** and **noises** created by both the piano and the piano player, e.g. noises the pianist makes when moving or breathing. We also recorded little squeaks and clicks emerging from the piano support, which add to the intimacy and personality of the recording. In UNA CORDA, you can add and adjust these noises as desired.

- Because of the **close microphone position**, the sound is very intimate and ‘in your face’, and all the little mechanical or fabric noises are audible. You can use these noises as a rhythmic element. In UNA CORDA, fabric and mechanical noises are adjustable, and you can choose from different fabric noises like silk, felt, leather or cotton, all of which create different sounds and rhythmic effects.
- Atmospheric and ambient sounds can be created by utilizing UNA CORDA’s **built-in effects modules**: to modify the basic sound of UNA CORDA, you can add lo-fi effects such as tape saturation and filtering, as well as convolution-based effects and modulation. For a finishing touch, shape the sound by applying equalization and compression.
- The piano sound by itself resonates nicely, creating tonal depth and a natural spaciousness. In UNA CORDA; you can further enhance the spatial impression by adding **reverb modeled after vintage plate and spring reverb units**.

Further extending the range of sounds the physical Una Corda piano is capable of creating, we captured **beaten flageolets** that you can add to the piano sound or play solo. We also added resonance and reverse samples, which the physical Una Corda piano cannot create on its own, but which add to the versatility of UNA CORDA. The **attack** parameter for the basic UNA CORDA tones helps create pad-like soundscapes.

1.4 Three KONTAKT Instruments



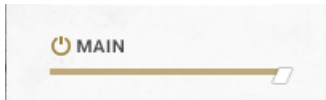
UNA CORDA contains three KONTAKT Instruments.

The physical Una Corda piano was sampled three times: without preparation, and with two different fabric preparations installed. UNA CORDA offers the three distinct tones captured in these recordings as individual KONTAKT Instruments:

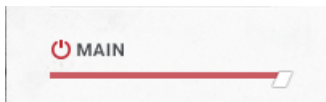
- **Una Corda Pure.nki:** Original Una Corda without fabric preparation , essentially a very pure and clean take on the familiar upright piano sound. Suitable for a wide range of styles, including classical pieces by Bach.
- **Una Corda Felt.nki:** Prepared with felt fabric, this Instrument recreates a smooth, warm, rather damped piano that works well for certain types of pop music, ambient, jazz, alternative, post-rock, and of course film scores.
- **Una Corda Cotton.nki:** Prepared with cotton fabric, this Instrument is more percussive and brighter sounding than the Felt variety, but also features additional noises. The rather distinct and unique, decidedly “prepared piano” sound suits musicians who aim to venture into more ambient, sound-scape based types music.

Different Colors used in User Interface

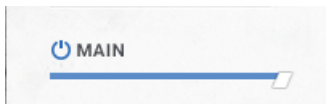
Each of the three KONTAKT Instruments contained in UNA CORDA uses a distinct color for displaying parameter values, as shown below. This manual uses the *Una Corda Cotton.nki* Instrument, therefore all parameter values and status LEDs are displayed in blue.



Una Corda Pure parameter value color



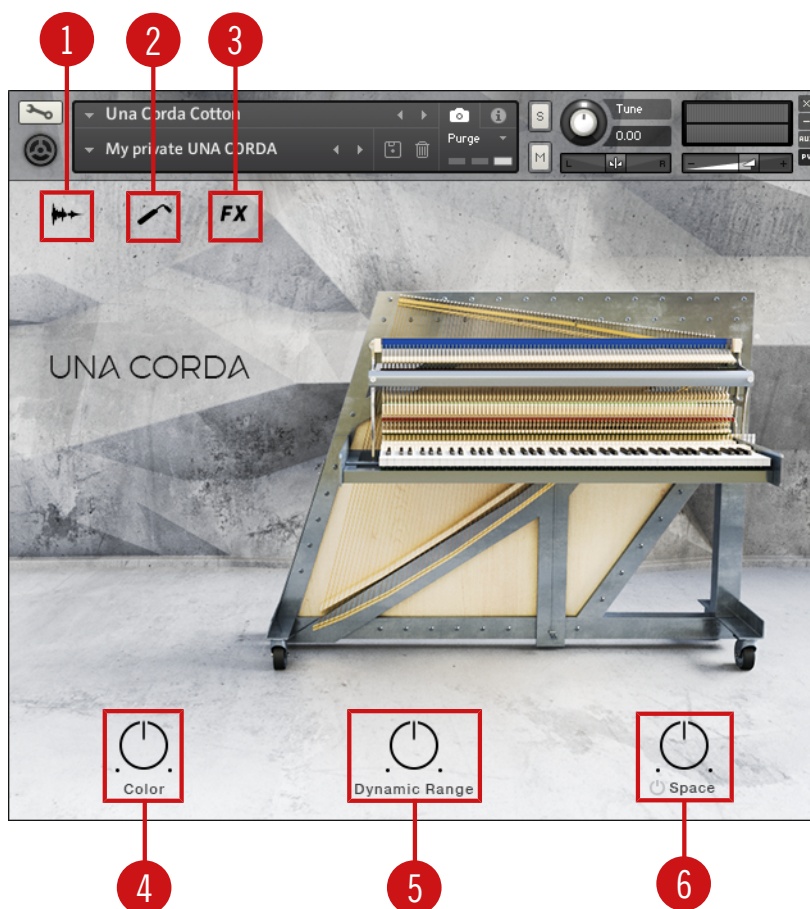
Una Corda Felt parameter value color



Una Corda Cotton parameter value color

2 User Interface

After loading UNA CORDA, you will see a picture of the instrument you are playing, as well as the main controls:



UNA CORDA's main view

Edit Page Selector

The Edit Page Selector at the top of the main view provides access to three Edit Pages:

- (1) **Workbench Tab:** Selects the [↑2.1, WORKBENCH Edit Page](#).
- (2) **Response Tab:** Selects the [↑2.2, RESPONSE Edit Page](#).
- (3) **Finish Tab:** Selects the [↑2.3, FINISH Edit Page](#).

Main Controls

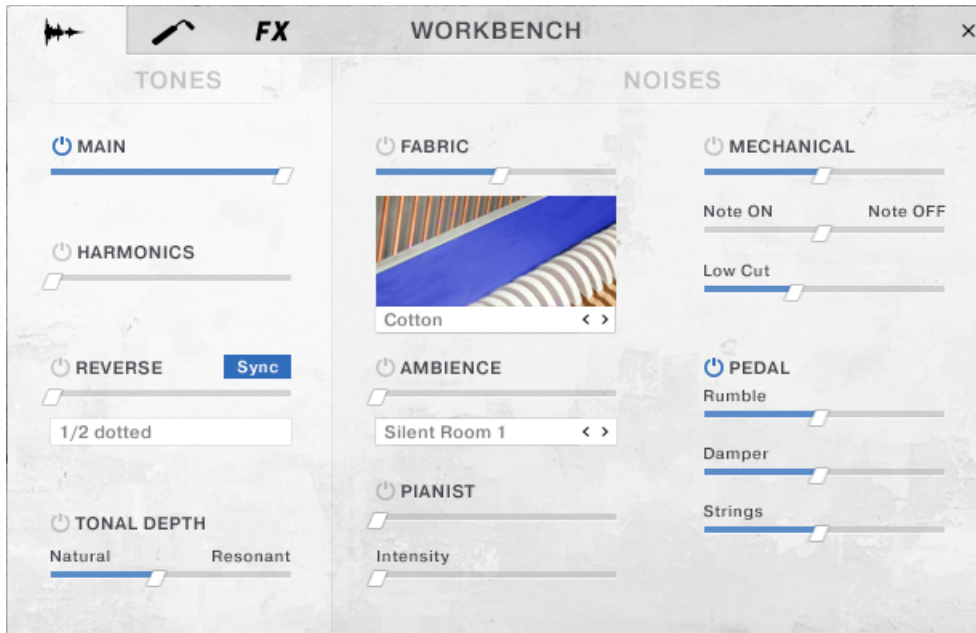
(4) **Color Knob:** Changes the tone color (or timbre) from soft to hard by readjusting the sample mapping. Turning the **Color** knob to the right will make the instrument sound harder and crisper, with a more pronounced attack phase. Turning the **Color** knob to the left will make the instrument sound warmer and softer, and the attack phase will be less pronounced.

(5) **Dynamic Range Knob:** Controls UNA CORDA's dynamic range by adjusting the volume while still using all velocity samples. Turn left to compress, or turn right to expand the dynamic range of UNA CORDA.

(6) **Space Knob:** Controls the share of the instrument's signal sent to the reverb unit, and thus the volume of the reverb signal. To switch the Space effect on and off, click the power button to the left of the **Space** label. The **Space Power Button** switches the Space module (see section [↑2.3.6, SPACE](#)) on or off.

The following sections will describe the user interface of UNA CORDA in detail.

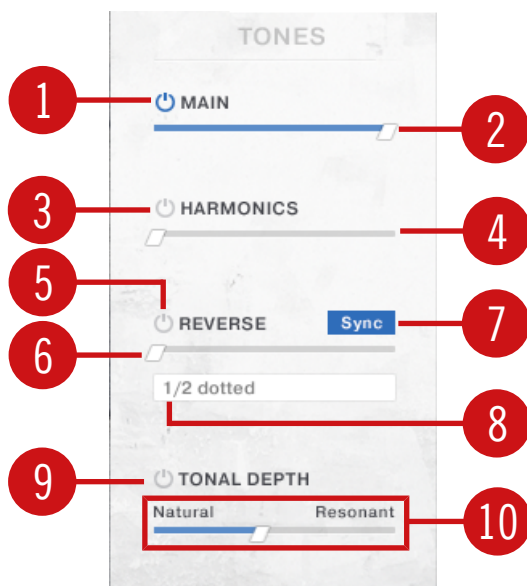
2.1 WORKBENCH Edit Page



UNA CORDA's WORKBENCH Edit Page

Use the controls on the [WORKBENCH](#) Edit Page to dial in UNA CORDA's tonal character and the amount of mechanical and background noises you want to have added to the piano's sound.

2.1.1 TONES Area



The TONES area of the WORKBENCH Edit Page

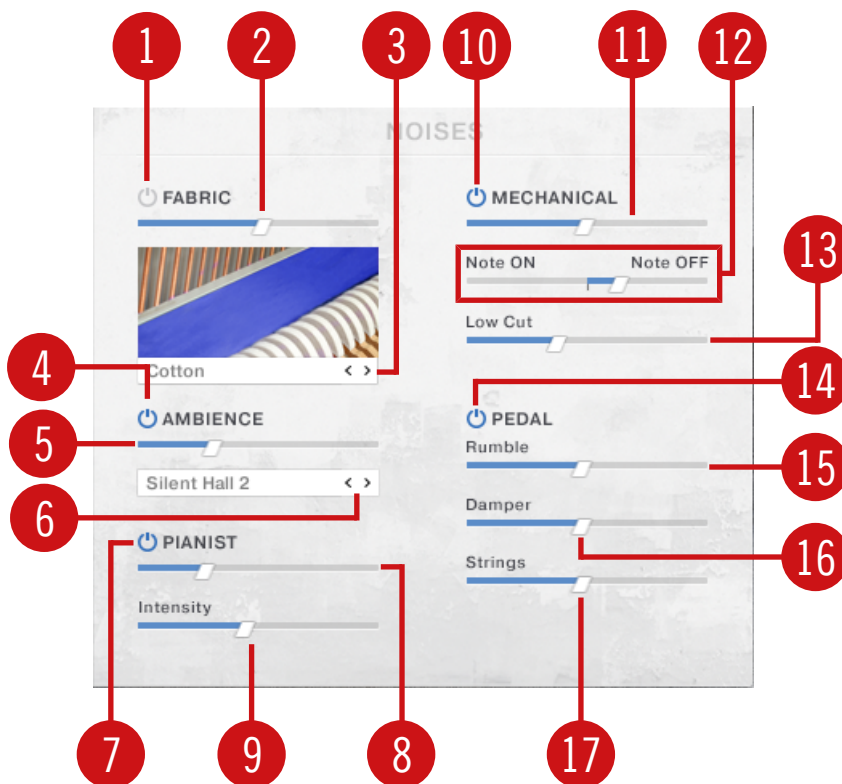
- (1) **MAIN Power Button:** Switches playback of the main piano samples on or off.
- (2) **MAIN Level Slider:** Adjusts the playback level of the main piano samples.
- (3) **HARMONICS Power Button:** Switches playback of the samples of harmonics on or off.
- (4) **HARMONICS Level Slider:** Adjusts the playback level of the harmonics samples.
- (5) **REVERSE Power Button:** Switches playback of the reverse samples on or off.
- (6) **REVERSE Level Slider:** Adjusts the playback level of the reverse samples.
- (7) **Sync Button:** Synchronizes playback tempo of reverse samples to a host clock.
- (8) **REVERSE Length Menu / REVERSE Length Slider:** When **Sync** is active, the **REVERSE Length** menu selects the rhythmic pattern that will be applied to the playback of reverse samples. When **Sync** is inactive, the **Time** slider that adjusts the playback duration of reversed samples in milliseconds replaces the menu.

(9) **TONAL DEPTH Power Button:** Switches the sound processing module on or off.

(10) **TONAL DEPTH Amount Slider:** Adjusts the amount of resonances added to the dry piano sound. These resonances will add depth to the sound of UNA CORDA.

2.1.2 NOISES Area

In the NOISES area you can add and adjust different noises that occur when playing the Una Corda. This does not only include the fabric and mechanical noises emerging from the piano itself, but also the sound of the pianist moving on his chair, or the ambience of the room surrounding the piano. The volume of each noise can be set using the corresponding fader.



The NOISES area of the WORKBENCH Edit Page

- (1) **FABRIC Power Button**: Switches playback of the Fabric noise samples on or off.
- (2) **FABRIC Level Slider**: Adjusts the playback level of the Fabric noise samples.
- (3) **Fabric Type Menu**: Selects from a variety of fabrics used for preparing the Una Corda piano, in addition to the preparations captured in the Cotton and Felt KONTAKT Instruments.
- (4) **AMBIENCE Power Button**: Switches playback of the Ambience noise samples on or off. Ambience samples add the noise floor of recording spaces, reel-to-reel tape machines, vinyl records and numerous other sources to UNA CORDA's piano sound.
- (5) **AMBIENCE Level Slider**: Adjusts the playback level of the Ambience noise samples.
- (6) **AMBIENCE Type Menu**: Selects from a variety of noise-inducing sources.
- (7) **PIANIST Power Button**: Switches playback of the Pianist noise samples on or off. Pianist samples add noises generated by the pianist's breathing or by moving on the chair to UNA CORDA's piano sound. Pianist noise samples will only be triggered while UNA CORDA is actually being played.
- (8) **PIANIST Level Slider**: Adjusts the playback level of the Pianist noise samples.
- (9) **Intensity Slider**: Adjusts the intensity of the Pianist noise samples, e.g. the frequency that Pianist samples will be played at. The more you move the slider to the right, the more often Pianist samples will be played back.
- (10) **MECHANICAL Power Button**: Switches playback of samples of the piano's action on or off. These samples add noises generated by the piano's action, e.g. by the hammers moving down or returning to their position, to UNA CORDA's piano sound.
- (11) **MECHANICAL Level Slider**: Adjusts the playback level of the Mechanical noise samples.
- (12) **MECHANICAL Playback Trigger Slider**: Adjusts the balance of Mechanical noises triggered by Note On and Note Off MIDI events. Moving the slider to the left will make the noises triggered by Note On events, i.e. noises of the key going down and the hammer moving towards the string, more audible while reducing the level of the noise of the hammer returning to its position upon key release (Note Off events). Consequently, moving the slider to the right will increase playback level of the Mechanical samples triggered by Note Off events while decreasing playback volume of the samples triggered by Note On events.

(13) **Low Cut Slider:** Adjusts the cutoff frequency of a low-cut filter applied to the Mechanical noises. Moving the slider all the way to the left will allow noise samples to bypass the filter entirely. Moving the slider all the way to the right will allow only the topmost frequency band contained in the noise samples to pass the filter.

(14) **PEDAL Power Button:** Switches playback of samples of pedal noises on or off. The pedals in a piano transfer a considerable amount of energy to the whole piano body and the sound-board, resulting in some low frequency resonance. When using a continuous sustain pedal, the volume of the pedal rumble, damper and string noises depends on the speed in which the pedal is pressed.

(15) **Rumble Level Slider:** Adjusts the playback level of the Rumble noise samples. Low-frequency Rumble noise originates from the pedal's mechanics that consist of the damper rod and lever, the pedal itself and a number of other parts.

(16) **Damper Level Slider:** Adjusts the playback level of the Damper noise samples. The damper pedal raises all dampers from the strings at once when pressed, and drops them back on the strings when released. Both of these actions result in a short damper noise.

(17) **Strings Level Slider:** Adjusts the playback level of the String noise samples. When the dampers leave the strings after pressing the damper pedal, each damper pulls its corresponding string a little bit, exciting the string so it resonates at its individual resonance frequency.

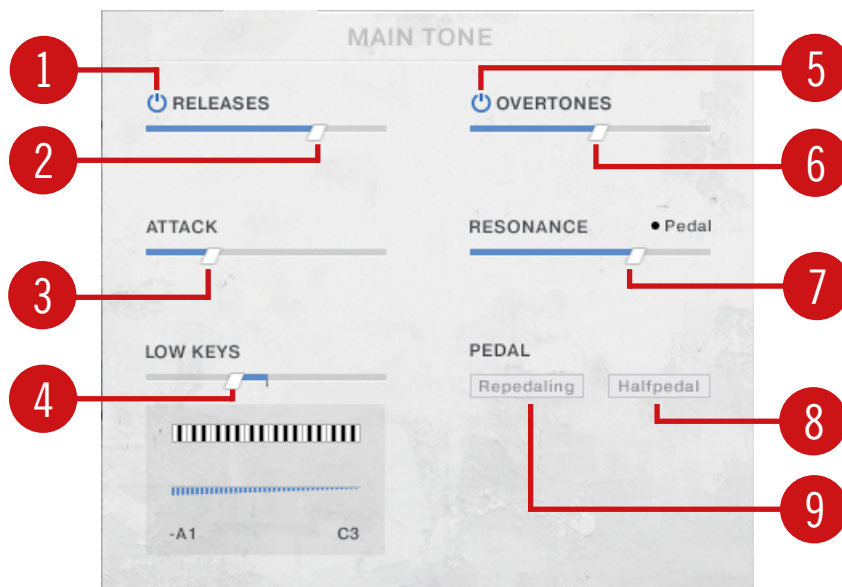
2.2 RESPONSE Edit Page



UNA CORDA's RESPONSE Edit Page

Use the controls on the [RESPONSE](#) Edit Page to define the way UNA CORDA reacts to your playing.

2.2.1 MAIN TONE Area



The MAIN TONE area of the RESPONSE Edit Page

(1) **RELEASES Power Button**: Switches playback of key release samples on or off. When hitting a key, the damper leaves the string. When releasing the key, the damper comes down to the string again. The small felt damper cannot stop the vibration of the piano strings immediately, so the sound gradually dies away. This takes some time, depending on the string's length and strength of excitation, and is captured by the release samples. When **RELEASES** is switched on, the recorded release samples will be played back upon key release. When **RELEASES** is switched off, no release samples will be played, i.e., the piano sample itself will fade out.

(2) **RELEASES Level Slider**: Adjusts the playback level of the release samples.

(3) **ATTACK Time Slider**: Adjusts the attack time for playback of the main piano samples. Moving the slider all the way to the left sets the shortest possible attack time, i.e. playback will start at the very beginning of the samples. Moving the slider to the right gradually increases attack time. At more extreme settings close to the right end stop, UNA CORDA will sound like a bowed string instrument or harmonium rather than a piano.

(4) **LOW KEYS Level Slider:** Adjusts the volume of the keys below middle C. Moving the slider to the left decreases the volume of the lower keys, moving the slider to the right will increase it. The lower the key, the stronger the effect.

(5) **OVERTONES Power Button:** Loads and enables overtones samples. After hitting a key, the corresponding strings may resonate at their fundamental or overtone frequencies when other strings are triggered. These overtones add liveliness to the sound. This is also known as “sympathetic string resonance.” Overtones samples are triggered only with the sustain pedal up; with the pedal down, the Resonance feature is called into action.

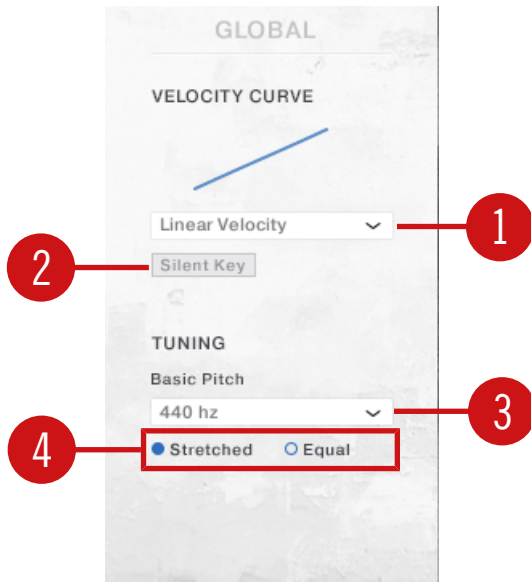
(6) **OVERTONES Level Slider:** Adjusts the playback level of the overtones samples.

(7) **RESONANCE Level Slider:** Adjusts the volume of string resonances that will play back when the sustain pedal is down. Pressing the sustain pedal on a piano raises all the dampers at once, enabling all strings to resonate sympathetically. This adds a much fuller and deeper sound to the note. The **Pedal** LED lights up when the sustain pedal is down, indicating that resonance samples are played back.

(8) **Halfpedal Button:** Enables the use of a continuous sustain pedal for half-pedaling. On a piano, you can precisely control the damper position by carefully pressing the pedal. The damper position, i.e., the distance between the damper and string, affects the release time and amount of resonance. Note that half-pedaling requires a sustain pedal capable of sending continuous values (MIDI CC values ranging from 0-127.) With the **Halfpedal** button inactive, a continuous sustain pedal is will work as a simple on/off switch.

(9) **Repedaling Button:** Enables re-pedaling. When active, keeping the sustain pedal depressed during note release will sustain the remaining sound.

2.2.2 GLOBAL Area



The GLOBAL area of the RESPONSE Edit Page

(1) **VELOCITY CURVE Menu:** Selects from a list of presets allowing you to adapt UNA CORDA's velocity response to the action of your MIDI keyboard, and to your own preferences. The selected velocity curve will be displayed above the menu.

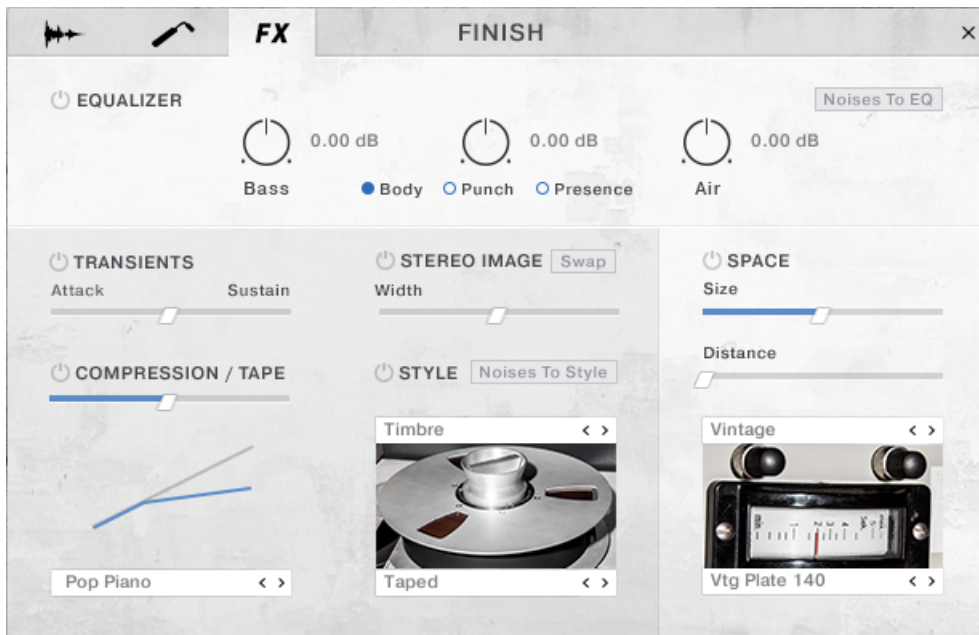
(2) **SILENT KEY Button:** Enables the “silent key” function—very low key velocities result in no sound.

(3) **Basic Pitch Menu:** Selects the basic pitch, also often called concert pitch, within a value range from 436Hz to 444Hz.

(4) **Temperament Selector:** Switches the tuning (or temperament) of UNA CORDA between **Stretched** and **Equal**. The default setting is **Stretched**, which is the way the piano was tuned for sampling. Stretched tuning accommodates the natural dissonances of metal strings, which stretch harmonics beyond the strings' ideal frequencies. To solve this issue in order to make

the instrument sound more harmonically pleasing (or “musical”), higher notes are stretched upwards. The amount of stretching required for a perfectly musical tuning depends on the length of the string, and thus the size of the piano.

2.3 FINISH Edit Page

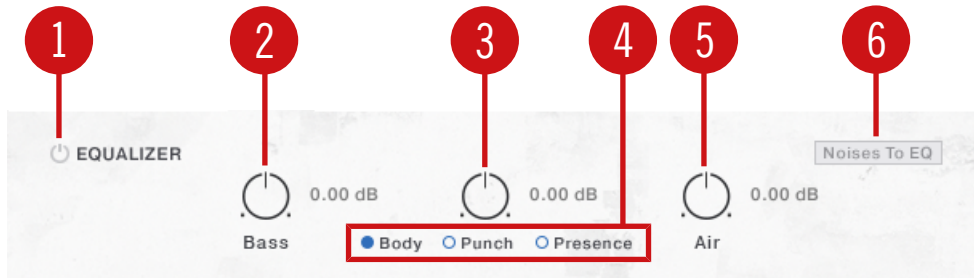


UNA CORDA's FINISH Edit Page

Use the sound processing modules accessible via the FINISH Edit Page to tweak the sound of UNA CORDA to your liking—be it by exploring the extensive sound design possibilities, or by applying a finishing touch.

2.3.1 EQUALIZER

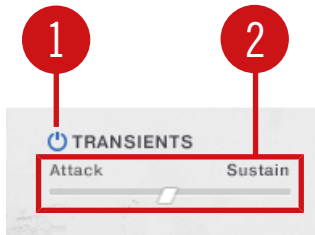
Using UNA CORDA's built-in equalizer, you can fine-tune the sound by emphasizing or attenuating frequency bands.



The EQUALIZER section of the FINISH Edit Page

- (1) **EQUALIZER Power Button:** Switches the equalizer module on or off.
- (2) **Bass Knob:** Adjusts the level of the low frequency band.
- (3) **Mid Frequency Knob:** Adjusts the level of the mid frequency band.
- (4) **Mid Frequency Preset Selector:** Selects from three presets designed to emphasize the low mid (**Body**), mid (**Punch**) or high mid (**Presence**) frequency response.
- (5) **Air Knob:** Adjusts the level of the high frequency band.
- (6) **Noises To EQ Button:** When active, noise samples (see section [↑2.1, WORKBENCH Edit Page](#) for details) will be processed by the **EQUALIZER** section. When inactive, noise samples (see [↑2.1.2, NOISES Area](#)) as well as harmonics (see [↑2.1.1, TONES Area](#)) will not be processed, but will bypass the **EQUALIZER** section.

2.3.2 TRANSIENTS

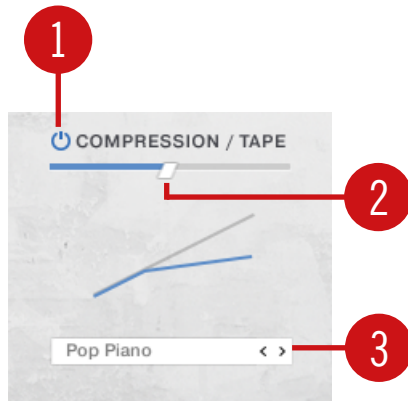


The TRANSIENTS section of the FINISH Edit Page

- (1) **TRANSIENTS Power Button:** Switches the Transients module on or off.
- (2) **TRANSIENTS Amount Slider:** Emphasizes either the attack or sustain phases of the input signal. Use this effect to add depth and atmosphere to the tone by moving the slider to the right, or to emphasize an assertive sound by moving the slider to the left.

2.3.3 COMPRESSION / TAPE

A compressor, besides controlling the dynamic range, changes a sound's envelope and thus the sound itself. UNA CORDA's compressor focuses on creative sound design rather than the technical aspects of limiting the dynamic range.



The COMPRESSION / TAPE section of the FINISH Edit Page

- (1) **COMPRESSION / TAPE Power Button:** Switches the Compression / Tape module on or off.
- (2) **COMPRESSION / TAPE Amount Slider:** Adjusts the amount of compression that will be applied.
- (3) **Compressor Preset Menu:** Selects from a variety of compressor characteristics. The display of the characteristic will change accordingly. A tape machine symbol will be displayed when a preset that uses tape saturation in addition to compression is selected.

2.3.4 STEREO IMAGE

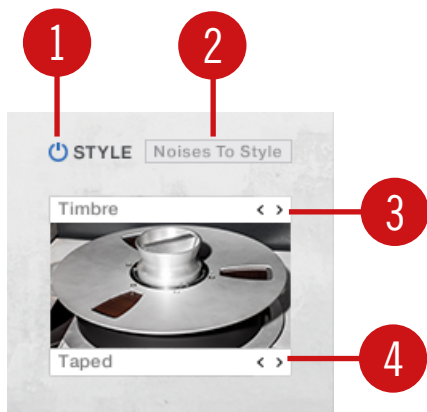


The STEREO IMAGE section of the FINISH Edit Page

- (1) **STEREO IMAGE Power Button:** Switches the Stereo Image module on or off.
- (2) **Width Slider:** Use the **Width** slider to widen or narrow the stereo field. The middle position corresponds to the stereo width of the original recording; moving the slider all the way to the left will result in a single channel signal, while moving the slider all the way to the right will enhance stereo width beyond natural.
- (3) **Swap Button:** The samples in UNA CORDA are panned with the low notes on the left and the high notes on the right, which corresponds to the listening position of the player. Clicking the **Swap** button swaps the left and right channels, changing the listening position to that of the audience.

2.3.5 STYLE

The STYLE section provides access to three categories of creative sound manipulation, with presets ranging from gentle reel-to-reel tape artifacts to intense lo-fi and modulation effects.



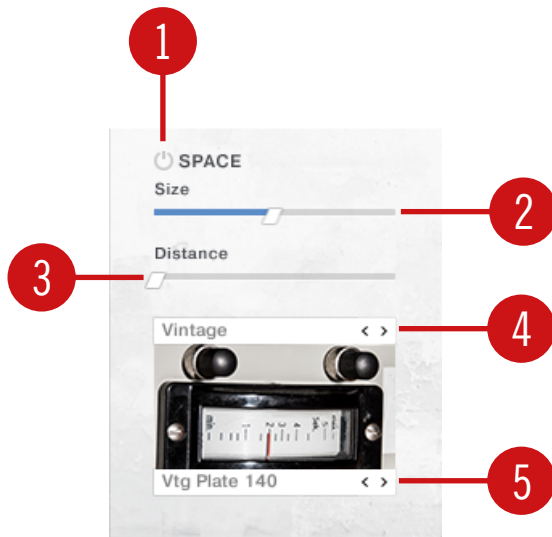
The STYLE section of the FINISH Edit Page

- (1) **STYLE Power Button:** Switches the Style module on or off.
- (2) **Noises To Style Button:** When active, noise samples (see [↑2.1, WORKBENCH Edit Page](#) for details) as well as the harmonics (see [↑2.1.1, TONES Area](#)) will be processed by the **STYLE** section. When inactive, noise samples will not be processed, but will bypass the **STYLE** section.
- (3) **Effect Type Menu:** Selects the type of effect processing that will be applied to the input signal.
- (4) **Effect Preset Menu:** Selects the preset for the effect selected in the Effect Type menu. The picture will change depending on the selected preset.

2.3.6 SPACE

The SPACE section provides access to the parameters of UNA CORDA's convolution-based reverb and delay module that uses impulse responses of various vintage reverb units as well as concert halls, churches and studio rooms to recreate those acoustic spaces. Furthermore, the SPACE effects module can add spherical effects, additional piano resonance, echo and delay, as well as reverse the input signal.

SPACE (Reverb Mode)



The SPACE section of the FINISH Edit Page in Reverb mode

- (1) **SPACE Power Button:** Switches the Space module on or off.
- (2) **Size Slider:** Adjusts the virtual size of the chosen room type.
- (3) **Distance Slider:** Adjusts the amount of pre-delay before the reverb starts.
- (4) **Effect Type Menu:** Selects the type of effect processing that will be applied to the input signal.
- (5) **Effect Preset Menu:** Selects the preset for the effect selected in the Effect Type menu. The picture will change depending on the selected preset.

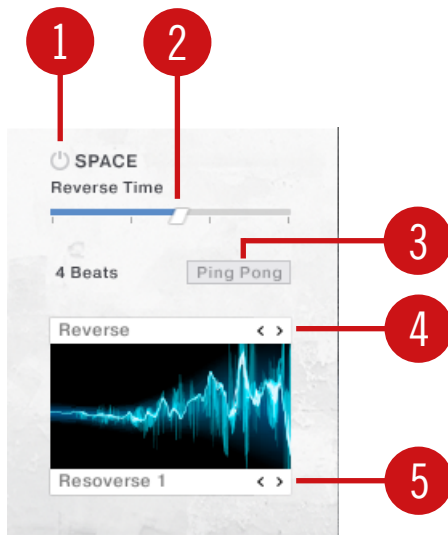
SPACE (Echo Mode)



The SPACE section of the FINISH Edit Page in Echo mode

- (1) **SPACE Power Button:** Switches the Space module on or off.
- (2) **Delay Time Slider:** Defines the rhythmic pattern of the delay effect in fractions of whole notes, and thus sets the delay time. The selected setting is visualized by the note symbol below the slider.
- (3) **Ping Pong Button:** When active, the processed share of the effect's output signal will alternate between the left and right stereo channel according to the pattern selected using the **Delay Time** slider. The unprocessed share of the signal will always be sent to both stereo channels.
- (4) **Effect Type Menu:** Selects the type of effect processing that will be applied to the input signal.
- (5) **Effect Preset Menu:** Selects the preset for the effect selected in the Effect Type menu. The picture will change depending on the selected preset.

SPACE (Reverse Mode)



The SPACE section of the FINISH Edit Page in Reverse mode

- (1) **SPACE Power Button:** Switches the Space module on or off.
- (2) **Reverse Time Slider:** Defines the fade-out time of the reverse effect after a key is released.
- (3) **Ping Pong Button:** When active, the processed share of the effect's output signal will alternate between the left and right stereo channel according to the pattern selected using the **Reverse Time** slider. The unprocessed share of the signal will always be sent to both stereo channels.
- (4) **Effect Type Menu:** Selects the type of effect processing that will be applied to the input signal.
- (5) **Effect Preset Menu:** Selects the preset for the effect selected in the Effect Type menu. The picture will change depending on the selected preset.

3 Credits

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